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AROUND THE LAKES.

CLEVELAND.

There are letters in care of E. F. Borges, corner Superior and River streets, for Wm. Silk, Bill Nofiler, M. S. Mullen and John Wild.

The James Couch, which unavoidably collided with the schooner Ahira Cobb in St. Clair river, is discharging her cargo at the docks in the old river bed. She is considerably injured.

Messrs. J. F. Holloway, president of the Cuyahoga Furnace Co., and John F. Pankhurst, of the Globe Iron Works have gone to New York to attend the meeting the Mechanical Engineers' Association.

Freight's continue steady at $1.00 for coal to Chicago and Milwaukee and the same price is paid for ore from Escanaba; ore rates from Marquette and L'Anse have advanced to $1.35@1.40 to Ohio ports.

During the detention of the schooner Negaunee at Point Iroquoise, Thomas O'Brien, one of the crew went to Sault Ste. Marie, and with John Merron, a missing sailor from the Wagstaff, which was in the harbor, got on a tear and both fell into the canal a short distance below the lower gates of the new lock. Being unable to help themselves, both were drowned. The bodies have been recovered. The Negaunee arrived here on the 4th, leaking some.

The schooner M. I. Wilcox is now in Globe drydock. It will be remembered that she was recently aground at Snake Island shoal. Her masts are broken off and she is otherwise damaged. She will get a new forefoot and her bottom will be recalked. Her owner, Mr. Dannacker, is here. The survey will be held to-day, Captain Warner acting for the owner, and Captain George Berriman for the insurance company. It is probable that after the survey she will be extensively repaired.

Depositions were taken last week at L'Anse and Copper Harbor, bearing on the case of the Silver Islet Consolidated Mining and Land Company vs. the steambarge H. B. Tuttle or $80,000, damages for the non-delivery of a cargo of coal, at Silver Islet, Ont., by the Tuttle. The Tuttle made every effort to reach her destination, but the season was far advanced, the water at different points low, gales and fogs prevailed, and she was forced to seek shelter at Copper Harbor, and finally at L'Anse, not being able to proceed further on account of ice. The case, limitation of liability, will come up for hearing before Judge Welker, in this city, November 28th, and will be conducted by H. D. Goulder, Esq., for the defendants, John W. Moore and others.

SOUTH HAVEN.

Special to the Marine Record.

The steamer Grace Grummond, of the South Haven & Chicago Line, burned at the dock at South Haven on the night of the 4th, and is a total loss. She was valued by her owner, P. J. O'Conner, of Chicago, at $30,000. The Grace Grummond was a side wheel steamer of 195 tons, built at Philadelphia by Rainey & Co., in 1856, and was classed A2. She was originally built for the United States revenue service and had the peculiar cut of the government craft. She was early in the season engaged in the passenger and excursion business between Duluth, Agate Bay and other Lake Superior ports, and was quite popular.

W. P.

CHICAGO.

Special to the Marine Record.

At the Chicago Drydock Company's yard the steambarge Nellie Torrent was in drydock to get her wheel tightened up, he schooner White Star to get a leak stopped, the steambarge Swallow for a new wheel, the schooner City of Toledo got a new rudder stock, the barge Bay State a new foreboom, the propeller Peerless had her decks calked, the schooner Annie O. Hansen a new cat head.

At Miller Brothers' drydock the barge Noquebay was in for calking, the schooner Bay State for a new stem, the tug Alpha for new wheel, the schooner Stafford for some new plank in her bottom and repairs to her stern, the schooner Racine for calking, the steamship Oceanica for a new wheel, the steambarge Burnham is getting a new pilot house and texas and some new stanchions, bulwarks and rail on her upper deck.

The owner of the schooner Christina Nilsson, sunk at Bailey's Harbor, has filed a wreck report in which the loss on the vessel is said to be total. The pecuniary loss is $10,000.

During October 1,320 steam and sail vessels arrived at, and 1,312 vessels cleared from the ports of Chicago, South Chicago, and Michigan City. The total tonnage arrived was 466,057 tons and the total tonnage cleared was 473,743 tons.

Captain Sullivan and the crew of the wrecked schooner Golden West, have arrived from Georgian Bay. They report the vessel a total loss.

The schooner White Star, coal laden, arrived at this port Saturday, leaking badly, in tow of the wrecking tug Leviathan. The schooner was unloaded as quickly as possible and proceeded to one of the Chicago Drydock Company's docks, where the leak was stopped.

A dispatch from Captain Trinter states that the Onoko made the run from Chicago to Buffalo in three days and fifteen hours. This is the best time ever made by that monster, and, considering that she is the largest craft on the lakes, it must be considered as one of the most remarkable achievements in the line of quick trips on record. Shortly after noon on October 25th she finished unloading her cargo of coal at Richardson's dock in the North Branch. At 2 p. m. she was at Armour & Dole's elevator B, where she took on 70,000 bushels of corn, and then went to elevator A, to finish loading. At 7:30 p. m. she had 100,000 bushels of corn in her hold. At 9 p. m. she reached Rush street bridge, bound out, but her machinery became disabled, and she was detained six hours making repairs. She left the piers at 8 o'clock Sunday morning and arrived at Buffalo at 6 o'clock Wednesday evening, October 29th.

The steambarge George C. Burnham collided with Twelth street bridge early Thursday morning. Her pilot house and texas were demolished and a portion of her upper works much damaged. The freight was also damaged.

The Seamen's Union have raised their wages to $2.50 per day.

Great joy was felt by marine men at this port upon the recept of the news Tuesday morning, of the safety of the schooner Lucinda Van Valkenburg, as nearly all have given her and her crew up for lost.

The schooner Sophia J. Luff, collided with the schooner O. Shaw, lying up the south branch of the river Monday night. The Shaw lost her mainmast.

Lumber freights have gone up and there is good demand for tonnage.

Grain freights rule as follows for Buffalo 2½ cents for wheat, 2¼ cents for corn.

The schooner S. B. Pomeroy arrived on Monday, with her mainmast broken below the tressel trees.

The steambarge Fayette of this port, Captain G. W. Flood, was discovered to be on fire when about seven miles off Manistee, which port she had just left, last Friday morning. She was run back to the pier where with the aid of the waterworks the fire was got under. Her texas and upper works forward were badly burnt. T. W.

DULUTH.

Special to the Marine Record.

Freight rates on wheat rule at 6½c., considered a good rate.

The tug Silver Spray, of Port Arthur has been flitted with a new pilot house at the shipyard here.

The local inspectors still find some work.

The steamers Iron Duke and W. P. Graves were yesterday chartered for wheat to Buffalo at 6½ cents. They will arrive light, the Duke towing David Dows and the Graves towing the G. W. Adams back to Detroit, where these schooners will be laid up.

The Lake Superior News says a number of vessels have cleared this week drawing 15 feet 3 and 4 inches aft. In fact there has been no time this season when vessels could not have loaded to 15 feet 8 inches, or even 16 feet, in our harbor if a reasonable amount of care had been taken in getting out. But this would have done no good, as there is but 15 feet 6 inches of water in the Sault canal. Vessels can load to 16 feet in Chicago, but the trouble there is the same as here, the Lime Kiln crossing in the Detroit river only allows passage for a draft of 15 feet 6 inches. So that Duluth is as well off in depth of water as Chicago. To sift the matter down, the Sault canal and the Lime Kiln crossing are the keys to through lake navigation from all ports on Lakes Huron, Michigan and Superior, and the sooner the people understand that large and continuous appropriations must be made for these the better.

PORT COLBORNE.

A telegram received here on the 3d by Messrs. Chase Bros. states that the schooner Jura, wheat-laden, went ashore near New Glasgow.

The vessel has probably six thousand bushels of grain on board. She is owned by Chase Bros. of this place, and is valued at $5,000 and insured in the Boston Marine for $3,500 Messrs. Armstrong and Mathews, and the tug Mary with steam pumps and a wrecking outfit left here to try and release her.

A son of Captain Griffith, of the lost schooner New Dominion, drove to Port Maitland where he found unmistakable proofs that the sunken vessel was the New Dominion. He recognized the yawlboat and also found a desk which had washed ashore with all the vessel's papers in it. He also found a number of articles belonging to his father. None but the cook's body has been washed ashore yet. The woman, he says, is a stranger, his father having shipped her in Cleveland.

ST. IGNACE.

Captain J. A. Burrows, of the steamer St. Magnus, dropped dead while his boat was lying at the dock in the Sault Ste. Marie river, Wednesday night. Heart disease is supposed to have been the cause. His remains were taken on the Campana to his home at Hamilton, Ont.

BUFFALO.

Last Saturday Captain John Conners, master of the schooner Richard Winslow, was arrested and taken before United States Commissioner Strong on the charge of assaulting the cook on Lake Superior. According to the testimony of the crew there seems to be no foundation for the grave charges. The United States law makes the penalty for this crime on the high sea death, and no bail can be received. Captain Conner was taken to Utica in charge of a United States Marshal to lay before Judge Cone the evidence submitted before Commisioner Strong, who held him for trial. The object of this visit is to endeavor to make some arrangement for evading the strict letter of the law so that the accused can be released. This is said to be the first case of the kind ever tried in the United States courts.

Captain William Randall, formerly master of the schooner Selkirk, will command the Richard Winslow.

The steamer Wocoken's wet wheat was run into Richmond elevator, where it will be dried. The Wocoken and consort Richard Winslow will load coal at Cleveland for Duluth. It had been intended to dock the Wocoken here, but she will go into the dock at Cleveland instead.

The schooner Louisa, of Port Rowan has arrived with a lot of wreckage from the schooner King Sisters, which went on Mohawk reef on October 19th, and became a total loss. The lot included two anchors, chains, two pumps, yawl, canvas, ropes, etc.; in all worth about $300. This wreckage was secured at the instance of the Continental Insurance Company, who have the risk on the hull.

The Saveland met with a mishap on Tuesday night. Just when the wind was most violent she was being towed in by the tugs Bryant and Compound, the latter having the stern line, when she fetched up on a pile just off the pier light. The Compound crashed into the vessel's stern, doing considerable damage, but luckily above the water line. The tugs sustained no material injury. The Bryant was slewed around by the current and ran into the Saveland's bow. The tug's stern was smashed and her house grazed somewhat. The Alpha afterward helped the Compound to release the schooner, which required about three hours' pulling.

Judge Coxe has decided that Captain Conner's case was bailable and fixed the amount at $10,000. Marshal Level returned to Buffalo last evening. Until it is known whether bail can be obtained the accused will remain in his custody. The Wocoken and Winslow will not wait for Captain Connor. Captain Randall, second mate of the Wocoken, will take command of the Winslow. Those who know Captain Connor speak of him as an excellent gentleman and are certain of his innocence. He lives in Canada.

ALPENA.

The tug Moore with the wrecked schooner Milliard Fillmore are in port. They have two steam pumps aboard and can keep her afloat. When the weather permits they will leave for Port Huron.

The schooners Smith and Post and Higgie and propeller Garden City and consort are in port and a number of boats are in the bay for shelter.

MARITIME LAW.

BROUTY V. FIVE THOUSAND TWO HUNDRED AND FIFTY-SIX BUNDLES OF ELM STAVES, ETC.

(*District Court, N. D. New York. 1884.*

In admiralty.

Cook & Fitzgerald, for libelant.

Marshall, Clinton & Wilson, for claimant.

Coxe, J. This is an action for freight. The defense is non-delivery of a part of the cargo. On the 10th of May, 1884, the libelant, who is the owner and master of the schooner Seabird, for and in consideration of the sum of $121.65, agreed to convey from New Baltimore, Michigan, to Buffalo, New York, certain property described in the bill of lading as "5,256 bundles of staves and 259 barrels of heading." As no tally was made at New Baltimore, the only evidence at that time of the number placed on board is furnished by the bill of lading. On or about the sixteenth of May the Seabird arrived at the port of Buffalo. The consignee was duly notified and the cargo immediately discharged. The greater portion thereof was, the same day, placed in freight cars by stevedores employed by the claimant. Two and a half car-loads, however, remained on the dock all night. When the cars were loaded they were sealed, and were soon afterwards, by order of the claimant, conveyed to his manufactory, five or six miles from the dock, where they remained on a siding till June 28th. On that day a tally was commenced, which was not completed till July 5th. It was then that the deficieney of 631 bundles of staves and 5 barrels of heading was discovered. So far as is disclosed by the evidence, no other authentic tally was made at any time. The claimant refused to pay the freight until the libelant furnished him a statement showing that the full number called for by the bill of lading had been delivered. He now seeks to offset against the freight the value of the missing property. There is no theory upon which he should be permitted to do this. The libelant did all that he was bound to do. There is not a particle of evidence that any of the cargo was lost, stolen or destroyed while in his possession. It was not of a character to excite the cupidity of seamen It could not be secreted or easily carried away, and it is absurd to suppose that it was wantonly destroyed. No motive, or opportunity even, for fraud has been shown; no negligence has been proved. Indeed, nothing has been found in the testimony which would justify the court in the shadow of a suspicion against the libelant or any of his crew. Every witness who speaks upon the subject swears that all of the cargo put on board the Seabird at New Baltimore was delivered at Buffalo. This fact must be regarded as conclusively established.

It is argued for the claimant that the libelant is concluded by the allegation of his libel and the statement in the bill of lading signed by him. That having receipted for 5,256 bundles and 259 barrels, he will not now be permitted to say that a less number was placed on his vessel. Assuming this position to be well founded, there is not, as before stated, sufficient to charge the loss upon the libelant. The tally, showing the alleged deficiency, was not made until after the property had remained six weeks in freight cars on a side track in a populous city. The libelant may, with reason, retort that if presumptions and suspicions are to be indulged in, it is quite reasonable to suppose that the loss occurred during the six weeks that the property was on land as during the one week it was on the water. Had the claimant brought an action for damages founded upon such proof, it would have been the duty of the court to dismiss it. The evidence is too speculative and conjectural. But the bill of lading is not conclusive upon the libelant; like other receipts it may be explained. Abbe v. Eaton 51 N. Y. 410. It would be an intolerable doctrine to hold the carrier irrevocably bound by every statement signed by him in the bustle and excitement of commerce. He should always be permitted to show the truth. Whether the mistake or loss occurred at New Baltimore or Buffalo is not material so long as no fault can be imputed to the libelant.

There should be a decree for the libelart, with costs.

COAL CARGO SEIZED.

Last Wednesday the cargo of coal in the hold of the schooner S. V. R. Watson was seized by the Sheriff. Captain D. M. Becker, of the firm of Becker & Kelley, vessel brokers, had just before that time begun a suit in the Common Pleas Court against the Northwestern Coal Company for $35, which they claimed was due to them for services in chartering vessels. The cargo on board the Watson was owned by the Northwestern Fuel Company, and Captain Becker, to secure his claim had it attached. It was released by the Sheriff on a bond being given by Thomas Axworthy. It is stated that the suit will be amicably settled.

THE COLORADO—MARSHAL'S FEES—COMMISSIONS.

(*District Court N. D. New York. 1884.*)

Appeal from Taxation of Marshal's Costs.

James A. Murray, for marshal.

William B. Hoyt, for respondent.

Coxe, J. In May, 1884, the propeller Colorado was sold by the marshal, under a decree, and the proceeds were paid into court. His fees and commissions for this service, estimated on the entire amount realized, were paid him in full. After discharging the debt of the libelants there still remained a large sum in the registry of the court.

On the 7th of June, 1884, the present proceeding was instituted by Frederick L. Danforth, as receiver, to reach the amount so remaining. A petition was filed and a monition issued which was placed in the hands of the marshal for service.

In addition to his fees for serving *mesne* process, mileage, etc., he charged $49.58, "per cent. on amount recovered." This item was disallowed by the clerk. The marshal now appeals. The clerk was clearly correct. The marshal had already received his commissions. The money was in the registry of the court and under its control. No action on the part of the marshal was necessary to restore it to its rightful owner. When its owner was found the clerk was directed to pay it over. That was all. No process was required and none was issued, there was no sale and no settlement. There is no section of the fee-bill which directly or indirectly makes such a charge permissable, and it is not a case where the discretionary power of the court on the subject of costs can be invoked.

Taxation affirmed.

COLLISION—FOG HORNS—AN IMPORTANT DECISION.

Commissioner Proudfoot has just made a report in admiralty suit of importance. It was in the collision case of the steambarge Tempest and tug Boscobel. Two years ago the Tempest and barge Peshtigo, which was in tow of the tug Boscobel, collided off Chicago, and the Tempest was damaged to the extent of $2,000. The collision occurred at 7 o'clock in the morning, when a dense fog prevailed. The Boscobel and tow were heading north, and the Tempest was steering southwest by west. Both the steam vessels exchanged fog signals for five minutes before the collision. When they sighted each other the Tempest was steering so she would have struck the Boscobel about amidships. The officer in charge of the Boscobel signaled the Tempest to put her wheel hard a starboard, and she passed under the Boscobel's stern. It was not until then that the tow line was discovered, and the captain of the Tempest tried to swing clear in order to avoid a collision with the barge. When the Peshtigo was seen she was to the westward of the course of the Boscobel, and a collision was inevitable. The Tempest's engine was stopped and reversed, but before her headway could be checked materially she had struck the Peshtigo on the port bow, and was damaged to the extent of $2,000 as stated. The owners of the Tempest filed a libel against the Peshtigo Company, charging the fault against the Boscobel, and also claiming that her master had violated rule 19, which requires vessels in danger of meeting, when approaching with their starboard bows toward each other, to put their wheels hard apart. They also claim that the Peshtigo was at fault in not sounding a fog horn, and not following the course of the Boscobel. Commissioner Proudfoot in his report found the Boscobel and Peshtigo at fault but also found the Tempest at fault for running at full speed in a fog. The importance of this decision lies in the Commisioner's claim that a barge in tow of a steam vessel must sound a fog horn during foggy and thick weather. The owners of the Boscobel and the Peshtigo have appealed from the report.

ORDER TO GRANT STAY OF PROCEEDINGS REFUSED.

The Maritime Court, Toronto, refused to grant an order staying proceedings against the American steamer Pacific, libeled by the Canadian Pacific railway, until a decision in the Canada steamer Alberta case has been arrived at by the American courts. These boats, it will be remembered, collided in the Sault River, and the owners of each libeled the other for damages. The case will be heard in a few days.

BALLANCE OF WAGES CLAIM.

On the 21st ult., Wm. H. McDonald, of Tonawanda, New York, Steward, and Timothy Sullivan, of Troy, New York, fireman, on board the tug Balize, brought suit in the United States district court to recover the balance due upon their wages. The tug was seized by the United States Marshal and held in custody until the next morning when the captain, W. H. Hutchinson, settled the claims and costs in full and the boat was released. The tug is owned by S. A. Murphy, of Detroit, Michigan.

A DREDGER AT SEA.

An English Journal refers to the behavior at sea of a steam dredger, ordered by the Chinese government, of the Vulcan Company, of Stettin, Germany. The question of transport was at first somewhat perplexing, but it was finally determined to navigate the dredge bodily to its destination. The dredge consists of a large, oblong pontoon, the dredging machine itself passing through a ladder well in the middle. It draws six feet of water and is fitted with an 80-horse-power engine for driving the dredger buckets, and also a propeller. For the journey the dredging apparatus was taken to pieces and stowed on deck along with a heavy iron crane intended for arming men-of-war, hoisting boilers, etc. The slot, or well, was left open, so that there was a volume of water inside of it which had to be carried along. This and the heavy deck load caused the navigation of the pontoon to be looked at with considerable doubt, but the novel steamer has proved an unexpectedly safe vessel. Shortly after starting, it encountered a storm in the North Sea and stood it extremely well, to the surprise of the crew. The captain had authority to have the slot plated at the bottom in an English port if he considered it advisable, but this turned out superfluous, and would only have reduced the depth of the dredger in the water and lessened the efficiency of the propeller. The journey from England to Gibraltar lasted fourteen days, and in the Bay of Biscay the vessel experienced a seven days' severe southwast storm, which it stood capitally. The captain states that he never had a boat going so quietly and safely under his command as this dredger. During the heavy gales not even a plate or tumbler had slipped off the bare table, an occurrence which happens on ordinary steamers with a very moderate sea on. The slot filled with water in the body of the boat not only caused this increased stability, but also allowed it to be kept well to the wind. Of course no progress could be made during the storm. The speed naturally is slow, only four knots, and the voyage to the northernmost coast of China is calculated to last five months. Perhaps this steady behavior of the unusual steamer may give useful hints to designers of anti-seasickness channel boats.

THE LATEST TRIUMPH IN BRITISH NAVAL ARCHITECTURE.

The trial trip of the new Cunarder, the Umbria, took place on the Clyde, Saturday, October 4th, the vessel steaming thirty miles at a speed of 21 nautical miles an hour. As she had then been out of dock only a day or two, a marked increase of speed may be looked for when her machinery is in thorough working order. The Umbria is the largest vessel afloat, with the exception of the Great Eastern. She is 520 feet long, 57 feet 3 inches breadth of beam, and 41 feet depth of hold, and measures over 8,000 tons. The vessel was built in the Fairfield yard, at Govan, where a majority of the fast steamers of late years have been constructed. Her great breadth affords room for a wide saloon, which is 76 feet long, 9 feet high and lighted by a lofty cupola skylight. The electric light is used. The Umbria will carry 720 first-class passengers, and has no steerage accommodations. The engines of this magnificent work of marine architecture are said to be the most powerful in the world. The center high pressure cylinder is 71 inches in diameter, and the two low pressure are each 105 inches, with a 6-foot stroke. The screw is made of manganese bronze, cast in Fairfield yard. The qualities of manganese bronze, combined with the development in practice of the true proportions of the screw propeller, are computed to add upward of a knot an hour to the performance of the old-fashioned cast iron blades. The vessel is fitted for the admiralty service, and can carry coal for sixteen days, when moving continually at a speed of 18 knots per hour. The Umbria will sail from Liverpool for New York November 1st.

IMPROVED COAL CRANE.

Mr. Westmacott's coaling cradle must be looked upon as the key to the successful application of movable coal shipping appliances. It may be described as a light platform suspended by chains, which takes its seat on an ordinary line of rails in any position. It is suspended on what may be called an anti-friction swivel, which enables a man to turn the cradle with a loaded wagon on it, thereby dispensing with turn-tables, There are no tipping chains to hook on and off every time a wagon is shipped, as is the case with coaling cradles of the usual construction; the tipping chains in this case pass through the center of the swivel attachment, and are permanently connected with the cradle. The crane itself consists of a nearly square wrought iron pedestal or base, tapering upward, which is carried on four wheels, one near each corner, running on rails of 24 feet gauge, laid parallel to the quay wall. These wheels, however, are used only for traveling on; the whole of the weight when working is taken by four hydraulic jacks, one at each corner, which effectually prevent any movement of the crane. Rising out of the top of the pedestal, and revolving in bearings at the top and bottom of it, is the pillar, consisting of two flat plate girders, between which is placed the hydraulic cylinder for lifting. The chain from this cylinder passes over the jib head, and both ends are attached to the cradle. The jib is attached at the lower end to the front of the pillar, just above the pedestal; and at the outer end by stays to the top of the pillar. At the back of the pillar is fixed a second hydraulic cylinder, which effects the tipping of the wagon by making a bight in the tipping chain that passes over the jib head to the cradle. The tipping chain is always kept taut by a third hydraulic cylinder placed on an inclined frame, which is fixed to the pillar at the back in the same way as the jib is in front. Thus the tipping cylinder proper needs to have a short range only. The inclined cylinder and its frame act as a counter weight for balancing in some measure the load hanging from the jib head. The turning of the pillar and jib is effected by a pair of hydraulic cylinders, one on each side of the pillar, fixed to the base of the pedestal, which itself remains stationary. The chain from these cylinders passes round a drum at the foot of the pillar. All the motions are controlled with the greatest ease by one man in a valve house on the side of the pedestal. There are two of these houses on opposite sides of the machine, so that he can use which is most convenient for enabling him to see into the vessel. The pressure water is conveyed to the crane by movable and jointed pipes, which can be attached to hydrants placed at convenient distances on the hydraulic mains along the quay wall. There is an auxiliary or anti-breakage crane on the side next the dock, the foot of the jib being carried from the pedestal and the top by means of a chain from the top of the pillar, the invention of Mr. Charles Hunter, engineer to the Bute trustees. By an arrangement of a hopper resting on the deck, with telescopic throat, which is closed by a conical bottom or valve held up by the auxiliary crane, the first few wagonsful of coal can be lowered to the bottom of the hold, and a conical heap formed for the following coal to fall on, as is done at the hoists, so as to lessen the breakage of coal. When the anti-breakage crane is not in use, it can be swung to one side, clear out of the way. It is found in actual work that a wagon can be shipped in from two and a half to three minutes. The crane was designed and constructed by Sir William G. Armstrong, Mitchell & Company, and is similar to their well known and largely adopted movable hydraulic cranes for cargo and ballast work. These cranes were first introduced at the suggestion of the writer at the Atlantic wharf of the Bute East Dock to supersede fixed cranes. The introduction of the movable crane resulted in such an increased amount of work and dispatch to steamers that all the dock companies very soon recognized the importance of adopting cranes of this type. At the Royal Albert Dock, London, there are about ninety of these cranes. The number of tips for shipping coal at the Bute docks is now as follows: Thirteen balance tips at the west dock; twelve balance tips at the east dock; eight hydraulic tips at the east dock and entrance basin; one hydraulic tip in the entrance channel for loading in the tideway; eight hydraulic tips at Roath basin; forty-two total number of tips. One movable hydraulic crane capable of lifting twenty-five tons. Each tip is capable of shipping 1,000 tons of coal per working day; the total shipping capacity of the Bute docks is therefore equal to nearly 12,000,000 tons of coal per annum. In some instances as much as 200 tons of coal have been shipped per hour at the hydraulic tips; and it is now not uncommon for a steam collier of 2,000 tons burden to enter the basin at high water of one day, discharge her ballast, receive her outward cargo, and leave at high water the following day, the entire operation having occupied less than twenty-four hours. The principal portion of the trade carried on in the Bute docks is the export of coal and iron, which amounted to 2,750,000 tons in the year 1873, and to 6,916,000 tons in 1883. The import trade of iron ore, timber, and general merchandise amounted to 630,000 tons in 1873 and in 1883 to 1,299,000 tons.—*The Engineer.*

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THE COAST SURVEY.

The joint commission, appointed shortly before the adjournment of Congress, to inquire into the organization and work of the coast and geological surveys, signal service, and hydrographic office, will probably meet in Washington, November 11th. During the recess the members of the commission have been collecting the opinions of scientific gentlemen and the heads of the various bureaus interested on the subject under consideration. The National Academy of Science was asked to consider the subject, and was requested to furnish its report to the commission upon its reassembling in November. That body referred the matter to a committee of which General Meigs was chairman. The committee has completed its report, but will not make it public until it has been given to the commission. It is understood that the report recommends radical changes. A number of members of the Academy have given free expression to their opinion on the work and the organization of bureaus. They favor the establishment of a new government department to embrace all the bureaus of a scientific nature. This would include Signal Service, Hydrographic Office, Coast and Geological Surveys, Lighthouse Board, Naval Observatory, and Army Engineers' work in the matter of the improvement of rivers and harbors.

QUICK TRIP ON A CANAL BOAT.

"No, canaling ain't what it used to be," remarked an old boatman who was going west to settle on a farm. "Up on the Erie times are awful hard. Freights so low that I've made more'n one round to New York and not get enough to pay towing charges and horse feed. I've quit boating forever. But I'll bet you I had a little experience on the canal that no man ever had. A sporting chap came to me in New York one day and said he wanted to hire my boat for two weeks. He paid me a thundering big price. He told me if any body asked me about my boat I should say she was the fastest packet on the line. Well, lots of fine dressed fellows did come around asking questions about the boat, my mules, my fastest trip, and such things.

In a few days we started for Buffalo. There was quite a crowd around to see us off. We started in a regular tow for Albany, but after we had got up about Yonkers we cast loose. In an hour we were hitched behind the C. B. Vibbard, the fast steamer, on her up trip. We went to Albany a-flying. Skipping west I was astonished to see a locomotive waiting for us at every level where the canal run alongside the railroad. I'll be cussed if they didn't hitch my old boat onto the engine, put the mules in their stable, and yank us through the water so fast I thought there wouldn't be a drop left in the ditch. The water just flew over the banks in sheets. It was that way clear down to Buffalo. Where a locomotive could be hitched on that was done, and in other places we had relays of mules, an' kept 'em on a dead run. Whenever there was boats ahead of us waiting for the locks this chap would run on and bribe the captains to let us pass. It cost him $1,900 to make that trip, but it was quicker by four days than any other boat ever did it. He won more'n $10,000 in bets, and had a good profit left."—*Chicago Herald.*

The Dove brought three specimens of ore from Agate Bay recently, from the mines of the Minnesota iron company at Tower, which are consigned to the New Orleans exhibition. While lying on Culver's dock they were the subjects of a great deal of favorable comment on account of their apparent richness. The largest chunk, which weighs 1,090 pounds, was taken from the Stone mine, and is of a very dark color, while the specimen from the Tower mine is of a more reddish hue. The latter weighed about 951 pounds. The other, which is from the Breitung mine, is of dark color and is the smallest of the three, weighing 478 pounds. They will probably be shipped to the commissioner at Minneapolis to-night or to-morrow.—*Herald.*

THE Lighthouse Board have just advertised for sealed proposals for the construction of an iron screw steamer for service on the Pacific coast, to be named Madrono. The plans and specifications have been prepared by C. W. Copeland, of this city, the consulting and constructing engineer of the board. In general appearance she will resemble the lighthouse steamer Manzinita, now on the Pacific coast; on deck she will be like the Fish Hawk, except that her houses will not extend quite so far forward. She is to be built of heavy iron, so as to withstand a possible stranding, and is to be finished in the very best manner. Her dimensions are: Length between rabbets, on the 7-foot water line, 162 feet; beam, moulded, 27.6 feet; depth of hold, 14.4 feet; depth of floors, 18 inches. She will be schooner rigged, and her motive power will consist of a compound engine, 22x40x36 inches, two overhead return tubular boilers, one smoke stack and will carry 80 pounds of steam.—*Nautical Gazette.*

A telegram from England says: The distress in the shipbuilding trade in the north is increasing, the trade on the Tyne is paralyzed. Forty ocean steamers are idle at Sunderland and subscriptions are being taken up for the relief of the workmen thrown out by the closing of the yards.

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AT

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SECOND HAND TUBULAR BOILER, 44 inches diameter, 43 tubes 3 inches diameter and 12 feet long, steam drum 30 inches diameter, 40 inches high; front grates, fittings and breechings; good order.

SECOND HAND MARINE BOILER, in good order; Shell, 7-16 inch iron plate; diameter, 9 feet 6 inches. length, 18 feet; 129 tubes 4 inches in diameter, 11 feet 4 inches long, three flues 18 inches diameter; two flues 16 inches diameter, two flues 10 1-2 inches diameter; fire box, 6 feet long, 4 feet high; steam chimney, 7 feet high

SECOND HAND MARINE BOILER four feet wide, 6 1-2 feet long, 5 feet high, sixty-four 2 1-2 inch tubes 60 inches long, cast iron breeching, good as new.

SECOND HAND MARINE ENGINE; double direct-acting 8x8 inch cylinder, shaft and wheel for yacht or tug; good as new.

V. D. NICKERSON,

MARINE ARTIST

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Commencing Sunday, May 11, 1884, at 12 o'clock noon the time given in the figures below is the new standard (Ninetieth meridian) time, which is thirty-three minutes slower than Cleveland time proper:

Eastward.	Arrive.	Depart.
No 4, Fast Limited Express	*1 10 A M	*12 05 A M
No 8, N Y, B & A Express	*6 35 A M	*7 00 A M
No 26, Elyria Accommodation	†8 05 A M	
No 35, Buffalo Ac'm via Sandusky	†10 35 A M	†10 50 A M
No 35, Toledo Accom via Norwalk	†10 35 A M	†10 50 A M
No 12, N Y & B Fast Express	*1 55 P M	*2 25 P M
No 14, Special N Y & Bos Expres		5 00 P M
No 2, Night Ex via Norwalk	9 40 P M	†10 00 P M
No 22, Night Ex via Sandusky	†9 42 P M	
No 26, Conneaut Accommodation	†4 25 P M	

Westward.	Arrive.	Depart.
No 1, Fast Limited Express	*11 55 A M	*12 05 A M
No 23, Mich Express via Sandusky	*2 15 A M	*2 35 A M
No 3, Chicago Express via "	‡6 05 A M	6 30 A M
No 25, Mich Accom Norwalk		†6 10 A M
No 21, Toledo Ex via Norwalk	†12 55 P M	†3 20 P M
No 5, St Louis Ex via Sandusky	†12 15 P M	12 40 P M
No 9, Chi Pac Ex via Norwalk	*6 06 P M	*6 30 P M
No 31, Elyria ac to Elyria only		†4 30 P M
No 27, Conneaut Accommodation	†8 10 A M	

Sunday train for Nottingham—Depart 8:30 a. m. and 1:45 p. m.; returning, leave Nottingham at 9:05 a. m. and 3:45 p. m.

Reference marks—* Daily, † daily, except Sunday, ‡ daily, except Monday.

For full information as to trains and connections apply at the new city ticket office, corner Seneca and St. Clair streets, Lake Shore block.

The Nickel Plate!

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The passenger equipment of this New Trunk Line is all new and is supplied with the latest appliances necessary to safe speedy and comfortable travel.

Trains leave and arrive at the Union Depot, Van Buren street, Chicago, and N Y, L E & W R'y depot at Buffalo.

Following is the time in effect Oct. 6, 1884, and until further notice:

GOING EAST.		LV.	AR.	GOING WEST.	
	A. M.			P. M.	
.....	7 50	.....	Chicago	7 50	.....
.....	9 45	.....	Valparaiso	5 42	.....
.....	P. M.				
.....	1 50	.....	Fort Wayne	1 50	.....
.....	2 05	.....	New Haven	1 35	.....
				A. M.	
.....	3 56	.....	Leipsic	11 30	.....
.....	4 49	.....	Arcadia	10 34	.....
A. M.					P. M
6 50	5 00	.....	Fostoria	10 22	8 50
7 35	5 45	.....	Green Springs	9 44	8 05
8 15	6 20	.....	Bellevue	9 10	7 35
10 49	9 02	AR.	Cleveland ..... LV.	6 45	5 01
P M.					
12 05	.....	.....	Painesville	.....	3 44
12 58	.....	.....	Ashtabula	.....	2 51
1 42	.....	.....	Conneaut	.....	2 20
2 41	.....	.....	Erie	.....	1 23
					A. M.
4 19	.....	.....	Dunkirk	.....	11 24
					A. M.
5 55	.....	AR.	Buffalo ..... LV.	.....	9 50

Through tickets to all points are on sale at principal offices of the company at LOWEST RATES for any class of tickets desired. Baggage checked to destination

For information, call on nearest agent of the Company, or address

B. F. HORNER, Gen'l Passenger Agent,

LEWIS WILLIAMS, General Manager. Cleveland, O.

BEE LINE

CLEVELAND, COLUMBUS, CINCINNATI & INDIANAPOLIS.

Commencing Sunday, June 8, 1884, trains of the Bee Line—Cleveland, Columbus, Cincinnati & Indianapolis Railway—will leave and arrive at Cleveland as follows, CENTRAL STANDARD TIME, 33 minutes slower than Cleveland time:

	Depart
No. 3, Columbus, Cincinnati & Ind Ex	7:00 A M
No. 23, Galion & Wheeling Express	6:40 A M
No. 9, Col., Cin., Ind & St. Louis Ex	*6:40 P M
No. 5, Col. Cin., Ind. & St. Louis Express	*12 35 P M
No. 27, Galion & C.L & W. Acc	4:00 P M
No. 29, Massillon & Ulrichsville Ex	5:00 P M
	Arrive.
No. 8, Col, Cin, Ind. & St. Louis Exp	*6:40 A M
No. 20, Uhrichsville & Massillon Ex	9:00 A M
No. 2, Col. Cin. & Indianapolis Express	9:50 P M
No. 14, St. Louis, Ind.. Cin. & Col. Ex	*4:35 P M
No. 22, Galion Acc	10:00 A M
No. 26, Wheeling Accom	4:30 P M
No. 4, Col., Cin. & N. Y. Express	1:15 A M

Trains marked * daily, all other trains daily except Sunday

E. B. THOMAS, General Manager. O. B. SKINNER, Traffic Manager.

A. J. SMITH, General Passenger Agent.

CLEVELAND, OHIO.

New York, Pennsylvania & Ohio R. R.

NEW YORK, BOSTON AND THE EAST.

The Shortest and Quickest Route to Pittsburg, Washington and Baltimore and the Southeast.

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Until further notice trains will leave from the new Central Depot, South Water street and Viaduct as follows:

6.50 a. m. ATLANTIC EXPRESS—(Daily) Pullman sleeping and hotel coaches from Leavittsburgh 8:35 a. m. to New York, Albany and Boston without change. Arrive at Meadville at 10:40 a. m. (dinner) Franklin at 12:08 p. m, Oil City 12:30 p. m, Corry 12.35 p. m, Jamestown (Lake Chautauqua) 1.35 p. m, Buffalo 5:50 p. m. Rochester 8:20 p. m.; Hornellsville 6:00 p. m. [supper]; Corning 7:25 p. m. Elmira 8:05 p. m. Binghanton 10:05 p. m., Albany 5:00 a. m. Boston 1:45 p. m.; arriving at New York 6:15 a.m.

2:20 p. m. LIMITED EXPRESS—Through Pullman sleeping coach from Cleveland to New York. Arrives at Meadville at 6:30 p. m, Jamestown 8:47 p. m., Salamanca 9:45 p. m., New York 10:10 a. m.

11:00 p. m. NIGHT EXPRESS—(Daily except Sunday) Seeping coach from Cleveland Hornellsville. Arrive at Youngstown at 1:50 a. m., Meadville 3:25 a. m., Corry 4:59 a. m. Jamestown 5,57 a. m, Buffalo 9:20 a. m., Rochester 12:58 p, m., Hornellsville, 11:00 a m, Corning 12:07 p m, Elmira 12:40 p. m., Binghampton 2:19 p m., New York 9:10 p. m. Arrive at Pittsburgh 5:50 a. m., without change.

2:20 p. m. PITTSBURGH EXPRESS — Daily — Through without change, Parlor car attached. Arrives at Youngstown 5:00 p m., Pittsburg 8:02 p. m., Washington 7:09 a. m, Baltimore 8:19 a. m.

4:11 p. m. MAHONING AOMMODATION — Stopping at all way stations, arriving at Youngstown 6:55 p. m., Sharon 8:01 p. m., Sharpesville 8:10 p. m.

6:50 a. m. PITTSBURGH EXPRESS — Daily — Through without change. Arrives at Youngstown 9.30 a. m., Sharon 10:30 a. m., Sharpesville 10:40 a. m., Pittsburgh 12 45 p m., Returning, leaves Pittsburgh at 4:15 a. m., 7:45 a. m., 12:55 p. m., and 3:45 p m.

10 35 a. m. YOUNGSTOWN AND PITTSBURGH ACOMMODATION—Stopping at all Way stations, arriving at Youngstown 1:40 p. m., Pittsburgh, 5.45 p. m.

Trains arrive at Cleveland, 6:15 a. m., 6:30 p. m., 10.20 a m; 1:05 p. m., and 9:45 p. m,

☞This is the only route by which passengers can reach Corry Elmira, Binghampton, New York City and intermediate points without change. No change to Boston and New England Cities.

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A. E. CLARK, Gen'l Pass'r Ag't Cleveland, O.
J. M FERRIS, Gen'l Man'gr, Cleveland, O.
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$66 a week at home. $5.00 outfit free. Pay absolutely sure. No risk. Capital not required. Reader, if you want business at which persons of either sex, young or old, can make great pay all the time they work, with absolute certainty, write for particulars to H. HALLETT & Co., Portland, Maine.

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CLEVELAND, OHIO, THURSDAY, NOVEMBER 6.

LOSS BY NEGLIGENCE.

On another page will be found an opinion which can be studied with profit by shippers and ship owners. The cause is brought against the owner and master of the vessel for apparent negligence, based on the non-delivery of the quantity of freight receipted for in the bill of lading. It is evident from the testimony that there was negligence, but it was on the part of the master in not having the freight tallied, at the time of shipment, with the bill of lading, and on the part of the consignee in not taking care of the goods after the same had been delivered on cars at the port of destination according to contract It appears from the evidence, that the staves, the cargo in question, remained on cars subject to the depredations of a populous city six weeks before they were invoiced, when it was found that 631 bundles, out of a cargo of 5,226 bundles were deficient. It was held by Judge Coxe, in his opinion, that these goods could not possibly tempt the cupidity of the seamen, that they could have no use for such unnegotiable property and that the loss of such part of the cargo must have occurred after it had been discharged from the ship. Public polity will not insist that the shipowner should assume the loss, under such circumstances, as a common carrier, and we consider the points advanced by the judge well taken, notwithstanding the fact that the bill of lading signed by the master of the vessel called for the full cargo entered. A bill of lading is not conclusive, and like other receipts, may be subject to explanation. There was no evidence advanced to show that any part of the cargo had been surreptitiously abstracted before delivery, and even if there had been the shipowner might justly claim that it would not be right to throw the responsibility of the loss upon him, especially if he has taken the precaution to man his ship with good seamen and true and honest men. In this case, therefore, it is apparent that an uniform bill of lading could bear unfairly upon the owner, although, as a general rule the shipper has no guarantee whatever in regard to the character and class of the crew of a ship. It is true, the ship owner is really responsible to no one in the matter of engaging his officers and crew. The shipper has to trust entirely to the self interest of the ship owner, and entirely to the business tact of the latter that a competent and honest crew shall be shipped. Under such circumstances he cannot but refuse to relieve the ship owner from liability for losses arising from negligence or fault of the crew, but it would scarcely be fair to ask the owner to assume the loss where the fact is so palpaple that it occurred after the goods had been delivered.

THE SUBSIDY SYSTEM.

The fact that the Dingley shipping bill repeals section 3976 and 4203 of the revised statutes of the United States and all other compulsory laws that oblige American vessels to carry mails from and to the United States, or that shall prevent the clearance of vessels until they shall have taken mail matter on board, which measure will take effect April 1, 1885, leads the Chicago Inter Ocean to comment as follows upon the English subsidy system, which has been the principal factor in making that country the Queen of the Ocean and which policy could be profitably adopted by this country: "The British Government dispenses her subsidies at the discretion of the Board of Admiralty. Though the carrying the mails is made a condition of the subsidy to each line yet the amount of the subsidy is graduated by the judgment of the admiralty as to the probable deficit in the earnings of the company to sustain the route, and not by the value of the mail service to be rendered. The payments of subsidy are also annual sums in gross to the line, and not a postage per letter. From 1850 she also paid $705,666 per year to the Cunard Company; to four companies she paid a total of $4,523,666 per annum, graduated according to their needs. From 1848 to 1854 she paid to bring her steam fleet up to 304,559 tons a total of $23,390,020, a subsidy equal to $93 per ton, which is more than such a fleet would sell for to-day. She also induced Brazil and other countries to join her in subsidy schemes in favor of her own vessels to the extent of $1,500,000 per annum, making her entire subsidy fund between 1849 and 1854 $6,023,000 per year. From 1854 to 1860 England spent $36,308,632 in subsidies on her steam merchant marine, and increased her tonnage from 304,559 tons in 1854 to 452,352 tons in 1860. From 1861 to 1865 England was making war on our commerce so much more effectively through the rebel pirate ships sent out from her dock yards than she had been able to do by subsidies, and American competition in the ocean carrying trade was so rapidly disappearing that she quickly reduced her subsidies, until in 1865 she paid less than at any time since 1849. Indeed her economy had dated from the year 1854—the very year in which, under the pressure of her competition, our merchant marine began to decline. In 1854 England began to diminish her subsidies in consequence of the refusal of the American Congress to aid American shipping, and in 1870, in consequence of the United States having for the first time granted a subsidy to the Pacific Mail, England for the first time jumped her subsidies up to a higher figure than they had been since 1854. In the intermediate period England had saved in reduced subsidies, compared with those she was paying while the United States was a successful competitor, exactly $19,472,094, or $5,000,000 more than was necessary to pay the Alabama claims, which was the whole cost of her war on our commerce. This will appear from the following schedule of the amounts saved by Great Britian, in subsidies, in each year after the decline of our commerce began, compared with her expense for subsidies in 1854:

Year.	Subsidies paid.	Saved relatively to the year 1865.
1854	$5,950,559	.....
1855	5,741,633	208,926
1856	5,713.560	236,999
1857	5,133,485	817.064
1858	4.679,415	1,271,144
1859	4,740,190	1,110,369
1860	4 349.760	1,600,799
1861	4,703,285	1,247,274
1862	4.105.353	1,845,206
1863	4.188,275	1,762,274
1864	4.503,050	1,347,509
1865	3.981,995	1,968,564
1866	4,227,018	1,723,541
1867	4,079.996	1,870,563
1868	4,047 586	1,902,973
1869	5,481,690	468,869
1870	6,107.761	.....
Total		$19,472,094

'From these figures it appears that if England had set apart the sum she could save annually in subsidies by the effective demolition of our ocean-carrying trade as an insurance fund to indemnity her against all cost of making war on our commerce, even to the extent of fitting out rebel privateers to destroy our vessels, she would have made a net profit merely on her savings of $5,000,000, to say nothing of the fact that while these savings were going on she was increasing her shipping to 5,150,000 tons, valued at $1,000,000,000 all of which represented wages paid for British labor, and was giving employment to 240,000 men in the construction and repairs of her ships, and to 220,000 more in sailing them, the latter of whom would increase her national earnings by $350,000,000 a year.

"Between 1854 and 1882 Great Britain has paid in subsidies to her shipping $164,000,000 while the United States in 1881 actually collected postage on her mail matter going to foreign countries to the amount of $1,560,679.90, and paid for carrying all her mails to foreign countries only $239,141.21, thus taxing her mail-carrying ships and making a profit to the department of $1,321,548.69 toward running the land mail service.

"England's mail contracts are let at the discretion of her board of Admiralty, which corresponds to our Naval Department.

"The United States pays 2 cents per letter for carrying mails. England pays such annual sums as she thinks necessary to maintain such mail lines as she desires, her subsidies being about twenty-five times as great as our mail expenses.

"England's tariff is protective as to manufactured tobacco and a few other articles. The general intent of her tariff is not to protect any manufactures."

On Monday last George Wilson, deck hand on the steambarge Oscoda, made complaint before Commissioner Bill that the boat owed him for a balance due as wages the sum of $13.80, and a summons was issued to the master of the barge to appear and show cause why the amount was not paid. Upon the hearing the evidence showed that the master had fully paid the sailor all the balance due him by cashing an order drawn on him by Wilson for $8.45 in favor of a representative of the city authorities, in the shape of a policeman, in order that he, Wilson, might regain his liberty, after having been locked up in the central station on the charge of being drunk. Complaints of this kind are continually being made by seamen, and the value of the method adopted by the United States authorities will be better appreciated by a perusal of the statute under which these proceedings are instituted, which is as follows: Revised Statutes of the United States, "Section 4,546. Whenever the wages of any seaman are not paid within ten days after the time when the same ought to be paid, according to the provisions of this title, or any dispute arises between the master and seamen touching wages, the district judge for the judicial district where the vessel is, or in case his residence be more than three miles from the place, or he be absent from the place of residence, then any judge or justice of the peace, or any commissioner of a circuit court, may summon the master of such vessel to appear before him, to show cause why process should not issue against such vessel, her tackle, apparel and furniture, according to the course of admiralty courts, to answer for the wages." Until the practice adopted by this statute became generally used masters of vessels suffered greatly because of their vessels being libeled on unjust and unworthy claims made by seamen, and were put to considerable annoyance. But, as will be readily seen, the practice above alluded to is a protection both to the master and seaman, for the reason that before a boat is libeled for the wages of any seaman both the seaman and master are put under oath and fully examined.

The funeral of Virginia Loyall Farragut, widow of Admiral Farragutt, took place from the Church of the Incarnation. Among the pall bearers were D. O. Mills, Chief Justice Daly, Commodore Young and Admirals Rhind, Smith and Nicholson. Among those present in the church were General Ulysses S. Grant and wife, the Hon. Wm. M. Evarts and wife, General Martin T. McMahon, and Admiral Porter. The body was interred in Woodlawn cemetery.

Mr. Nimmo's recent statistical exhibit of the growth of manufactures in the United States tells a wonderful story of development and prosperity. This country is now the largest manufacturing nation on earth, and the statistics show that ninety per cent of our products are consumed at home. The industries of the United States have been built up chiefly under a protective system, but now that our industries are established, the burdens that a protective system imposes on the people should be lightened. Protection to industries that have passed beyond the need of protection results in over production and then stagnation in business.

The Emperor of Germany has forwarded to the Marine Department a valuable gold watch and chain and fifteen pounds, the former to be presented to Charles William Murphy, the second mate of the steamship Nellie Moody, of Yarmouth, N. S., and the latter to be distributed among the seamen for services rendered the crew of the German ship DuKlein Heinrich.

ETHAN ROGERS.

CLEVELAND, November 3.

Editor of the Marine Record.

It is my desire to bring to the mind of the old time marine engineers one of our number. Mr. Ethan Rogers, of whom I speak, was a conscientious mechanic of indomitable will, enterprising and original in his undertakings and almost invariably successful. He was, however, modest and unassuming, and was ever engaged in studying the advancement of the science of engineering, for which he was well qualified. He came to Cleveland about the year 1838 and went to work for Samuel Hathaway, on River street, where he assisted in building engines for the General Wayne and Rochester. He went on the steamer Rochester as engineer one season, long enough to demonstrate the entire success of the engine which he had built, after which he was employed by the Ohio Railroad company building a machine for driving and sawing piles, a work of his own invention, which proved highly satisfactory. He then became general master mechanic of the Cuyahoga Iron Works, then in its infancy, but now a great manufacturing establishment, and many improvements in machinery attained shape under his direction and skill. While in this position he built the first locomotive ever built in Cleveland, the Pontiac, for the Ohio railroad, which was taken to Detroit to run between that city and Pontiac, on which route it done good service and where it is probably still running. He also built the first locomotive put on the C., C., C. & I. and Lake Shore roads.

It was thought that Mr. Rogers had one of the best heads for mechanical invention of any person living at that time and the courage to follow to a conclusion the bent of his genius, and his engines have not up to the present day been materially improved upon. Thinking it will do the old friends and fellow workmen good to be reminded of some of the marine works of Mr. Rogers, I will recall the names of the steamers that he engined, beginning with the first propeller built in Cleveland, the Emigrant which all old timers will remember; then the engines for the steamboats Empire, a new style high pressure; Saratoga, Hendrick Hudson, Boston, Arrow, Pacific and Ohio, and the propellers Oregon, Paugasset, Ohio, Republic, Sciota, Montezuma, Manhattan, Alleghany, Cleveland, Comet, Rocket, Mendota, Wenona, Galena, Dacota, Jersey City, Elmira, Olean, City of Superior, Earl Cathcart, and Northern Light. He then went to New York City and was employed as one of the engineers building the Harlem bridge on 3d avenue. He was also employed by the Neptune Steamship Company, and designed the engines for fifteen ships for them, namely, the Warrior, Electra, Galatea, Neptune, Nereus, Glaucus, Metis, Thetis, Doris, and others. He returned to Cleveland and was a partner in the firm of Lyman Strong & Co., Marble Works. When he disposed of his interest in that business, he retired and resided at Asbury Park, N. J., where he died in 1888. Mr. Rogers was twice married, his second wife surviving him, whom he left in very good circumstances, having amassed a fortune of about $200,000. He was quite a traveler, and during a two years' sojourn in Europe learned much that he took pleasure in recounting to his friends on his return. ENGINEER.

Notwithstanding the boisterous character of the weather for some time past, the opinion is prevalent that there will be a late closing, extending until December.

COAST DEFENSES.

General John Newton has submitted his annual report on the coast defenses. He earnestly urges that the harbors of our principal seaports be made impregnable to attack by the addition of guns of heavy caliber aud other appliances known to modern warfare. Past events, he says, by no means justify the assertions made that our cotton and grain have become so necessary to other nations that they could not engage in war with us for a short period without an interruption to their supplies of these articles. It seems to be forgotten that a descent upon our coast to hold our unprotected cities under the guns of a hostile fleet would consume but a few months, and in the meantime cotten and grain in sufficient quantities might be obtained elsewhere. The modern system is to make the beaten party pay the expense.

THE Board of Engineers for Fortifications has prepared an approximate estimate of the cost of fortifications, including armaments, modern heavy guns and rifled mortars for Portland, Boston, New York, Philadelphia, Baltimore, Hampton Roads, New Orleans and San Francisco; and another estimate, likewise approximate, for the preliminary works of earth and masonry, without armor, machinery and guns, to serve as emplacements for guns. Total estimate, including armaments, $53,588,000. The estimate for the emplacement of guns, including armor, guns and macountry, is $10,388,000. These estimates have been made with care, and it is believed that the fortifications, including guns, at all harbors on the coast of sufficient importance to tempt an enemy can be prepared at a cost not to exceed $60,000,000. The following estimates required for 1885 and 1886 are made. For the defense of Boston harbor, $880,000; New York harbor, $1,120,000; Philadelphia, $132,000; Baltimore, $132,000; Hampton Roads, $66,000; San Francisco, $900,000; modification of existing forts and batteries, $500,000; preservation of fortifications, $175,000; purchase of sub-marine mines, $300,000, casements, etc., $200,000; torpedoes, $60,000.

The Lake Superior News says the recepts of wheat at this port for the two months ending October 31st were 6,527,000 bushels, which is within a million and a half of the entire receipts of last year's crop. Shipments for the month just over were enormous, footing up a total of 3,150,000 bushels from elevators A and B which is not only much more than double what we ever shipped before in the same time, but is also much more than any other lake port has shipped during the month. Duluth leads the whole country in shipments for October.

GHEBOYGAN LIGHTS.

Notice is given that on and after November 1, 1884, a fixed red light, of the fourth order will be shown from the lighthouse recently erected on the isolated crib at the end of the dredged channel into the mouth of Cheboygan river, Straits of Mackinac, Mich. The apparatus lights the entire horizon, and the focal plane is thirty-five feet above the lake level. The light should be seen in clear weather from the deck of a vessel, ten feet above the lake, twelve statute miles. The structure is an octagonal tower painted red, surmounted by a lantern. Magnetic bearings and distances from prominent objects are as follows: Spectacle reef lighthouse, N. E. by E. ¾E., 17⅛ statute miles; Cheboygan lighthouse, E. by N., 2 statute miles; Point St. Ignace, N. W., 17¼ statute miles. On the same date the Cheboygan river range lights will be changed to show as fixed red, instead of fixed white, as now shown.

"Grog boats" are sent among the British fishermen off the coast of York and Cleveland by enterprising Hollanders. These boats are fitted out like English barrooms, with all the modern improvements, including barmaids, so that the sailors and fishermen can go on long sprees without the trouble of going ashore. These grog boats are a nuisance. They are demoralizing the toilers of the sea.

Mr. Gregory; agent of the Canadian Department of Marine, reporting upon the causes which led to the stranding of the steamship Warwick, says the accident was due to a greater deviation in the compass than was calculated for, in consequence of which the steamer was about twenty-seven miles out of her course.

SAULT STE. MARIE.

The propeller Ohio went aground four miles from Detour light. She was released without much trouble.

DETROIT.

Special to the Marine Record

November 4.—The schooner Lucinda Van Valkenburg, which had been given up as lost with all hands in Lake Erie, passed up yesterday, apparently all right. She was nine days on the passage from Port Colborne to this point, a portion of which time she had favorable winds. As she did not call I did not learn the cause of her tardiness, but it is presumed she was weather bound.

Dean & Co., boat builders here, who were burned out a few days since, are undecided as to whether they will resume business again or not, so that for the present matters remain in *statu quo*.

The barge Dan Rodgers, which was in trouble at the Straits some days since, arrived here on Saturday, waterlogged with steampump on board, and her cargo discharged. This craft was formerly the revenue steamer Fessenden, and is owned by Donnelly & Co., at Buffalo. The extent of her damages will not be known until after she is docked.

The weather in the rivers for some days past has at intervals been unusually foggy, causing more or less detention to the shipping.

Low water at the Lime Kiln crossing has at different times caused a delay of from twenty-four to thirty-six hours.

The scow L. M. Spaulding, while beating down the river on Saturday, struck a sunken pile near Wyandotte, and was run upon the bank to prevent sinking. Yesterday she was towed up to the city for repairs. Several of her bottom planks are stove in and her damages are estimated at $200.

There has been some changes lately in the command of some of the river steamers. The Riverside is now in charge of Captain John Edwards, late of the Pearl, and the steamer City of Dresden in command of Captain H. J. Wigle, in the room of Captain John Weston.

The steamer Milton D. Ward, of the Detroit and Port Huron route, has been bought off by the owners of the steamer Idlewild for the remainder of the season.

The Lake Superior Transit steamers continue doing a good business and have fair freights on the upward passage, but of course are not confined to regular days of sailing. The same may be stated as regards the movements of Ward's line.

The schooner Jura, a Canadian craft, was reported yesterday ashore above Port Stanley, laden with wheat. Being in Canadian waters, no tug from this side of the line could go to her relief. The vessel is insured for $8,500 and owned at Port Colborne.

The Canadian propeller Armenia passed down Sunday from Lake Superior, light, and is en route to Toronto to load grain for Montreal.

The tug Winslow, which left some days since to release the propeller Scotia, on Lake Superior, as noted in my last, has given up the job for this season, and it may be taken for granted that she will be a total loss. Her valuation is placed at $100,000, and she is insured for $60,000. The Winslow, after retiring from the Scotia, proceeded to Carribboo island to release the schooner Lady Dufferin, stranded there.

Freights rule the same as last quoted as regards grain, while there is a slight advance in lumber rates. Wheat, Detroit to Buffalo, 2c; to Lake Ontario, 4¾c.

The schooner Smith & Post, which, during the season, has been in the lumber trade between Detroit and Alpena, brought twenty-four cargoes, each averaging 260,000 feet, and from this out she will probably make three more trips, which will be a good season's trade.

The United States supervising and local inspectors of vessels have been obliged to remove their quarters from the custom house building to the Merrill block, in order to afford better facilities for the postoffice functionaries, which were considered too limited.

The schooner Gerrett Smith, which stranded and sunk at Crawford's quarry, Lake Huron, some three weeks since, has not yet been released and lies in six feet of water. Beside pumping, it will require strong pulling to get her afloat. Murphy Bros. have sent one of their wreckers to accomplish the undertaking, and with favorable weather will probably succeed. The vessel is 254 tons burden, twenty-nine years old and worth $5,000.

The longshoremen here are demanding 25 cents an hour for unloading vessels and will take no less. The schooner John Tibbitts arrived yesterday with wood, when the captain refused to accede to their demand, and after considerable parleying the captain succeeded in getting a gang of outsiders at 20 cents, when the storm blew over.

The schooner Belle Hanscome arrived yesterday from Buffalo with only part of a cargo of coal and salt. She was unable to secure the requisite quantity of the former as there was but a limited supply to be had.

Shortages on grain cargoes of vessels at Buffalo which loaded here, are as prevalent as heretofore, and there seems no accounting where the discrepancy arises, meanwhile there is loud complaint at both ends of the route. There is a strong suspicion that the difficulty is at Detroit.

The schooners Horner and City of Green Bay arrived at Walkerville, Saturday, with corn from Chicago. Both vessels have been chartered to load wheat here for Buffalo at going rates, also the schooner Red Wing. Beyond these charters there is no extra demand for freight room.

The tug Champion is undergoing repairs to her machinery at the Riverside works, and when completed, with the other wreckers belonging to Grummond's line, will be kept in readiness to attend to vessels in distress.

The tug Martin Swain has just returned from Lake Superior and is now on Lake Erie.

The steamship City of Cleveland, of Bradley's line, passed up this forenoon without her consorts.

A dispatch was received at Detroit Tuesday stating that the schooner Huron, ashore at Tryconnel, had been raised by jacks, and that the tug Chardon had succeeded in moving her ten feet towards deep water. The Huron got aground last week in trying to get out of the Tryconnel Harbor.

The water to-day at the Limekilns went down to thirteen feet six inches, the lowest point reached this season. It is now higher. The steamships Syracuse and New York are delayed here by low water.

Morley Bros' new propeller, which was constructed in Morley & Hall's shipyard at Marine City, is at the Shears wharf at the Detroit drydock to receive her boilers and machinery. The hull is a good model and is painted black. She will have four spars, three of which are already in, the forth to be placed after the boilers are received. Her length over all is 250 feet length on the water line 237 feet; breadth of beam, 38 feet, moulded depth, 23 feet. The kell of the propeller was laid last fall. She is double-decked, her lower hold being 14 feet deep, and the space between decks 7 feet. Her bottom plank is six inches thick and her sides 4 inches. The frames are 6-inch flitch and the floors 20 inches in the britch, 18 in bilge and 7 at the top. The ceiling is 6 inches and the floors 4 inches thick. She is iron strapped after the manner of all first class propellers. The weight of all kinds of fastenings which are used in her construction is over 110 tons. She has seven keelsons, five of which are 13x14 inches and two 13x13 inches. The floors of both decks are four inches thick and her centerboard is twenty feet long. It is estimated that her carrying capacity, on an even draught of fourteen feet of water, will be about 2,000 tons net. Her boilers are 10x16 feet, and are constructed of the best steel, to stand a steam pressure of 100 pounds. She will have a fore and-aft compound engine with cylinders forty and forty-four inches with forty inches stroke. It is probable that the propeller will not be completed early enough this fall to engage in the lake traffic, but on the opening of navigation next spring will take her place among the finest wooden propellers on the lakes.

The storm signal is up to-day and a shift of wind from southwest to north, though at the present quite moderate. J. W. H.

GOODRICH.

The schooner Grace Amelia, from Serpent river with a cargo of lumber, while making this port missed the piers and nearly went ashore on the north side. A heavy sea was running at the time, but the crew succeeded in getting out the anchors which held within a short distance from the shore, where she remained until released by the propeller Armenia.

ROCHESTER.

The extension of the river piers into the lake has not worked to the advantage of shipping. The action of the waters deposits mud and sand on the river bottom, especially at the sides, from the old lighthouse up to the steamboat landing so that vessels drawing more than seven feet of water cannot get up to the docks to unload, or even for protection from the weather. It is also feared that bars are forming near the mouth of the river, and the people of Charlotte are agitating the subject of securing an appropriation for the dredging of the river, and they feel that the work cannot be done any too soon. Lake navigators have been making bitter complaints about the condition of the harbor, and say that they dislike to take the risk of entering the river.

CHARLOTTE.

The extension of the Charlotte piers into the lake has not worked to the undivided advantage of shipping. The action of the water deposits mud and sand on the river bottom, especially at the sides, from the lighthouse up to the steamboat landing, so that vessels drawing more than seven feet of water cannot get up to the docks to unload, or even for protection from the weather. It is also feared that bars are forming near the mouth of the river, and the people of Charlotte are agitating the subject of securing an appropriation for the dredging of the river, and they feel that the work cannot be done any too soon. Lake navigators have been making bitter complaints about the condition of the harbor, and they say they dislike to take the risk of entering the river.

MILWAUKEE.

The disabled steambarge M. R. Warner will be given a new rudder and lower canvas here and will be towed to Cleveland. It is said that she will be rebuilt during the winter. Ten feet of her stern will be cut off, and she will be lengthened twenty feet to give her a better sheer. She will be converted into a double decker.

The steambarge Fayette took fire off Manistee and was damaged to the extent of $1,000.

The schooner E. P. Royce, light from Chicago for Black River, came in here in a leaking condition, and was docked. When entering Black river she struck on the flange of her anchor and stove a hole in her bottom.

EAST TAWAS.

Steambarges Iron Age and consort S. P. Sheldon and Ely, bound down from Lake Superior; S. Hubbell. A. H. Moss and S. A. Irish, all sheltered from the very violent northwest gale. The Iron Age parted a new nine-inch hawser rounding to in the sea.

AMHERSTBURG.

The schooner Venice, with coal, sailing up, brought upon the rocks west of the works near the black buoy on the Lime Kilns, this afternoon. She is eighteen inches out. The tug Phœnix is working at her. The water on the croasing is down to thirteen feet nine inches, the lowest this season.

The steamship William Chisholm, drawing about fifteen feet, is sitting in the mud at the dock here; also at dock are the propellers Cuba, Niagara, City of Concord and consort.

WHITEHALL.

The tug Wm. Richards, owned by Waltman & Lanford, of Montague, was damaged by fire this morning to the extent of $1,500. She is fully insured. The Richards was built at Manitowoc by Richards in 1873 and measures 19 tons. She is valued at $3,000.

OSWEGO.

At a meeting of the Oswego yacht club held last evening the following officers were elected for the coming year:

Commodore, John T. Mott; vice commodore, Wm. B. Phelps jr.; captain, Allen Ames; secretary, Wm. E. Lee; treasurer, James Henderson; measurer, Captain A. Fitzgerald; fleet surgeon, A. M. Tully, M. D.; board of directors, J. B. McMurrich, J. B. Donnelly and C. A. Worts.—*Times & Express.*

CHEBOYGAN.

All the buoys west of this port in the Straits have been taken up by the steamer Dahlia.

The Gerrett Smith was pumped out on the 4th, and allowed to fill again as the wind increased from the northeast, and the tug Smith came here for shelter. The tug Moore took the Fillmore and went down with her.

NAVAL ARCHITECTURE.

LOCKPORT, N. Y., November 3.

Editor of the Marine Record:

DEAR SIR:—Permit me once more to comment on Chip's article. I promise this to be the last, unless he comes out in his own name and denies the truth of what I give, and offers some legitimate argument on the subject in question. In his article of the 23d ult. he says: "Yet Mr. Norcross tells us there is no such science as naval architecture." *That is not true.* On the contrary, I tell the world that such science *does exist*, but lies dormant in the hands of scientists and is not now practised by expert builders. Chip should not mislead. My language is plain English, and I have said in my articles that I claim no new principles, and the gist of them is to establish known principles of science, both in the form and construction of sea-going vessels. He quotes Mr. F. D. Wilson as saying "In the *art* of naval construction there *seems* to be no less advance than in any other." Mr. Wilson, in his remarks, does not place naval construction in the category of other branches of construction, but calls it an art (dexterity; "adroitness, profession or trade," Johnson.) I say of it, it is a craft. I agree with Mr. Wilson in this respect. Again, he does not say positively that it has advanced, but uses the word "seems." If Mr. Wilson had known that exact science was embraced in naval construction, why did he not say so? Chip, in speaking of the naval schools of both England and France, says: "The curriculum preparatory to the study of naval architecture comprises a full course of mathematics, analytical mechanics, nautical astronomy and marine engineering." Do not all of our universities teach the same branches? But, after they have learned them in what school are they to learn naval architecture? Can Chip tell? If he can not, have him write to President Marsh, of the National Academy of Sciences, and he will probably tell him that question does not belong to the Academy, and will no doubt refer him to Scott Russell. In 1855 or '56 Russell came out with his revised work, and the Scientific American advocated the system and challenged any man to disprove it. I accepted the challenge and dissected his work, and sent the manuscript to them. They declined to publish it on account of its length, but, after giving me a compliment of its value, they then said "they would not be dogmatical on the wave line system," and dropped the subject. Why quote astronomers? What has the antics or variations of the compass needle to do with form and construction of a vessel? Nothing. If Chip is a skeptic and does not believe that anything can be done to insure safety on the ocean it would be a waste of time to discuss questions to that end with him. There is probably no man who can doubt that the original vessel was the dug-out, a hollowed tree, and shaped to pass the water as easily as possible. A *hollow trough*. What are ships to-day, in form, but enlarged dug-outs? What other question than so to shape them as to pass the water easily has ever been mooted? "Fine lines," Russell's "wave lines;" do any of them prevent pitching when head on to high waves? Do any of these prevent rolling when in the trough of high waves? Do any of these give steadiness to a vessel in high waves? Or sail stability without ballast? Are not no pitching, no rolling, good steadiness, and great stability desirable? Is not the lack of these the main cause of ocean foundering? Have any of the men Chip has quoted given any of these advantages? It should be common sense that all of the above mentioned points are fundamentals for a safe vessel. Is it possible to get a fundamental other than from physics? Was not the dug-out a work of expedience? What has science done to improve its form? If anything, when and in what? Are not all the motions of the ocean caused by natural laws? Are vessels as now formed the counter of such laws? Is not buoyancy the life of a vessel? Can it be so unless it be so protected that the vessel can not lose it, and be so as to be active at all times? Are vessels, as now formed, and as they come from the hands of the builders, of such shape that thay can be used without ballast? Does not the ballast destroy its own weight of buoyancy? Does it not, together with the vessel's cargo, locate the remaining buoyancy above water? Can the vessel then act in any other way, on meeting an on-coming side wave, than simply to float his level? Must not the wave, in that case, either go over or under the vessel? Is she not then wholly subject to the action and power of the wave? In coming head on to a high wave does not this above water buoyancy allow the wave to lift the bow until the wave passes his longitudinal gravitating center? Then does she not plunge down to meet the next on coming wave and both be battered by it in its fall and swept by it as the bow again raises? Has not her buoyancy then become the agent of her destruction? Is it not evident that buoyancy is then wrongly located? I again ask, can any fundamentals be found in the now form of vessels to meet these adverse points? This class of questions could be extended to multitude, when applied so as to produce a safe ship, but I confine myself to these as they are based on known facts. Chip or any one else can answer them, and I am prepared to meet them.

Your illustration of the first steamer can not be too highly commended, and the history of these old inventors is simply grand. Such are the fountain heads from which all improvements flow, but they rarely receive the fact. These men were all of them seeking improvements for propulsion. My ideas have been mainly for a safe hull to meet oceanic forces, but I have always kept propulsion in view, and now have it in my plans in the way that I think it must be for the future, that is, after "the second sober thought" has been acted upon by Congress, and laws can be made to enforce the right scientific thing. Science must settle all these marine questions. I have not seen any connected account of just how the screw wheel came into use, but no progress had been made with it up to 1832. At that time I was located at the village of Geddes, near Syracuse. It, the village, was named in honor of Judge Geddes; the surveyor general of the State of New York, is engineer-in-chief. He was the one that engineered the construction of the Erie original canal. I had made his acquaintance and he sometimes consulted me on mechanical questions. They had put in a screw pump for draining a deep cut, but it did not work. The Judge submitted it to me and I remedied the defect. At that time I had never heard of such a thing as a screw wheel, but as soon as I saw how that wheel drew the water up I became convinced that it would propel a vessel, and mentioned it to Mr. Geddes, He advised me to make a model, and I did. At that time I was superintending for a wealthy Englishman, Henry Dewey, and made the model at his place and with his aid, and we experimented with it. Later, the enlargement of the canal was commenced, and through the influence of Judge Geddes, I was appointed superintendent in the construction of the Rochester aqueduct, and laid the wheel by for the time. Beside, Mr. Dewey returned to Boston, England, and was a merchant and ship owner. I saw the first notice of the success of a screw wheel in one of the New York papers, and a description of it. It was on a canal running out of Boston, England. I became certain in my mind that Mr. Dewey had caused it to be put on. From that time it went into rapid use. But I had my doubts about its being the most economical manner of propulsion. In 1855 I built a steamer to work in rough water, built her on my plan of vessel. I put in her two wheels, (paddles.) I will only give one incident in relation. On the lake there were several sidewheel steamers and one good tug, built at Philadelphia, the Major Dana. It was no uncommon thing in heavy gales for the sidewheel steamers to be prevented by the waves from going on the lake. But the Dana and our boat were not ever headed off by any gale. Late in the fall we came down the lake in a heavy northeast gale, the worst one of that year. We found the Dana at Constantia, under the lee of the wharf. Outside the wharf at that place for about an eighth of a mile the water is shallow, so much so that in great gales the water (waves) break up and become a nondescript, tumbling mass. We ran through it dry and rounded too under the wharf, landed our passengers and ran out again. The Dana followed us. But when she got into that tumbling water she was tossed into all kinds of tumbling positions, and the water broke over her in all directions. She made the attempt to round too to windward but failed, and then to leeward so as to get back, but failed in that, but in the end she reached deep water and into the regular large roller. We staid by her until we saw that she was out of danger. The Dana was compelled to go slow and could not run a direct course over the waves. We held our course direct for port, which was distant about ten miles, and got in a long time ahead of her. That gale proved the value of two points in my boat, one that the form of the hull was right for rough water, and the other the superiority of the wheels over the screw. I now know that the wheel as I have it must be the one for safe and economic propulsion. I will only mention one great and paramount advantage that it has, and that is that it can be repaired at sea, any part of it, and a new shaft can be put in if one breaks. The shafts, as I have them, are short, and if you have a spare one, one could be replaced in a short time. I have now before me an illustration of the new steel cruiser Dolphin, and, in contrast to her, a painting of a war ship on the plan I gave our government in 1861. The Dolphin, for a war ship for the times, will prove of no account, and would be no match for England's iron clads. The ship, as I have her, could not be captured by the now combined navies of the world. Time will prove this fact. She has the turret gun, and I am the inventor. The gun should have had the hull designed for it and which would have had a speed of twenty miles an hour, against the monstrosity they put it on and which could only make two and a half miles an hour, and sunk the first time she encountered a light gale. There was a large "screw loose" at that time which has cost nearly $500,000,000.

Yours truly,

JOSEPH W. NORCROSS.

SOME USEFUL NOTES FOR ENGINEERS.

Among the questions most frequently asked of our inspectors when making their ordinary visits, says the Locomotive, are the following, which are of such general interest to engineers as to warrant publication:

1st. How much water per pound of coal should be made into steam at 60 pounds pressure per square inch with 60-inch tubular boilers properly made, well set and carefully fired?

Under the above conditions from eight to ten pounds, dependent somewhat, of course, upon the quality of the coal and the temperature of the feed water.

2d. How much more coal per pound of water does it take to carry 80 pounds per square inch than it does to carry 60 pounds per square inch?

This question could with more propriety be put as follows: How much more heat does it take to make a pound of steam at 80 pounds pressure per square inch than it does to make a pound at 60 pounds per square inch?

Practically, no more coal will be required; theoretically, about 0.4 of one per cent, or about 1-250 part more.

3d. Do you get enough better results from steam of 80 pounds per square inch than you do from steam 60 pounds per square inch to pay the extra wear and tear of boiler and engine?

Depends entirely upon conditions. If you can make use of 80 pounds steam pressure, it pays to use it; there are conditions, however, where 60 pounds, or even less, would be decidedly more economical.

4th. How much more heat do you get from pipes carrying 60 pounds pressure than from pipes carrying 10 pounds pressure?

Two and one-tenth per cent more heat will be given out per pound condensed from steam 60 pounds pressure than from steam of 10 pounds pressure, in falling from temperature due to their respective pressures to 212° Fahr.

5th. What proportion of direct heating surface to the volume of a fairly protected room is required to maintain the temperature of the room at 60° Fahr. in buildings heated by steam?

From 1-75 to 1-250, according to the size and exposure of the room.

6th. How much is a given amount of steam reduced in bulk by compressing it from 60 pounds per square inch to 80 pound per square inch?

About 30 per cent. See any steam table.

ARMY AND NAVY SIGNALS.

Signaling at sea is a necessity. If it was better understood and practiced daily by ship's crews it would no doubt be of greater advantage to all concerned. We are surprised at its simplicity. We give below the code used in the United States military service. Flags are not even a necessity for signaling at short distances. A piece of canvas or a hat will do in an emergency. Anything in fact, that can be seen by the party it is desired to converse with. For instance, take a hat in hand, hold it over head, then move it down to the right and you have made

ONE.

Go back. Now move to the left side and you have made

TWO.

Combinations of these motions make letters. Every sailor should know the General Service Code, army and navy.

A.—22.	N.—11.
B.—2112.	O.—21.
C.—121.	P.—1212.
D.—222.	Q.—1211.
E.—12.	R.—211.
F.—2221.	S.—212.
G.—2211.	T.—2.
H.—122.	U.—112.
I.—1.	V.—1222.
J.—1112.	W.—1121.
K.—2121.	X.—2122.
L.—221.	Y.—111.
M.—1221.	Z.—2222.

To signal, hold flag over head.
To make 1, wave flag to right.
To make 2, wave flag to left.

EXAMPLES.

To make "A" or 22, move twice to left.
To make B or 2112, wave to left—right—right—left.
Three (3), wave flag to front—signifies end of word; 33, end of sentence; 333, end of message.

ABBREVIATIONS.

Assent—Yes—22, 22, 22, 3.
Pepeat—121, 121, 121, 3.
Error—21, 21, 21, 3.
Cease signaling, 22, 22, 22, 333.

Signaling, by all means should be taught the young sailor in the merchant marine service, and the commanding officer of the training-ship St. Mary's might give the system some attention, if he has not done so already.

The schooner J. E. Bailey has been abandoned as a total loss. She is ashore at Gill's Pier. The insurance companies will lose $8,000.

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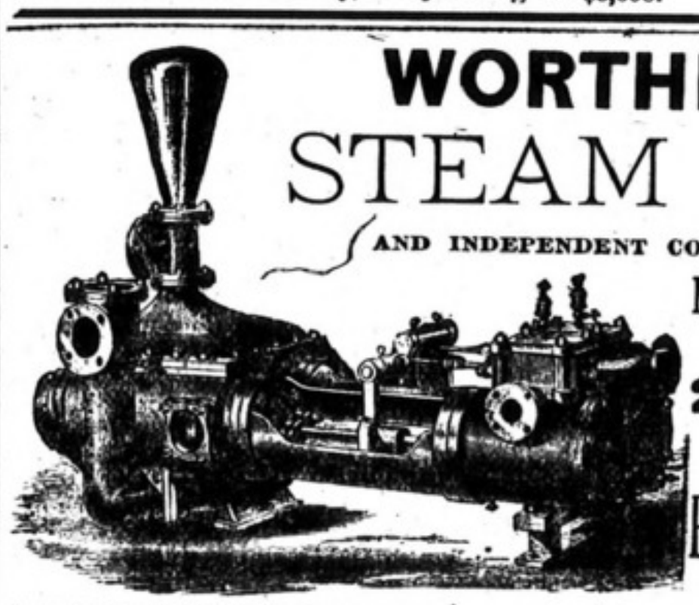

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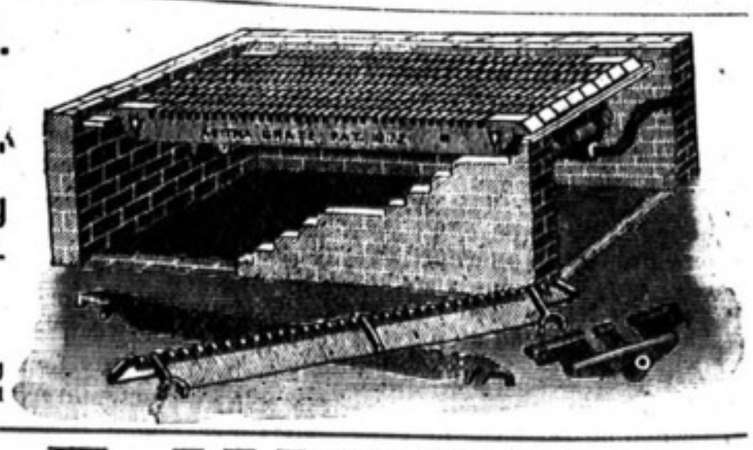

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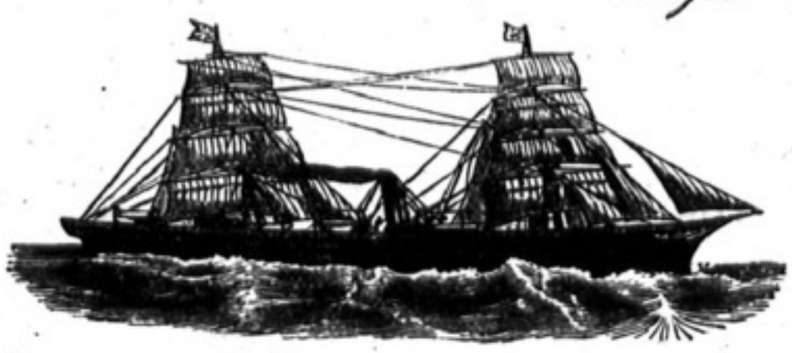

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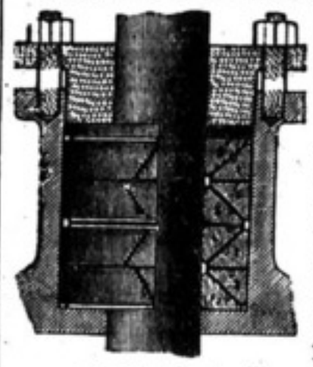

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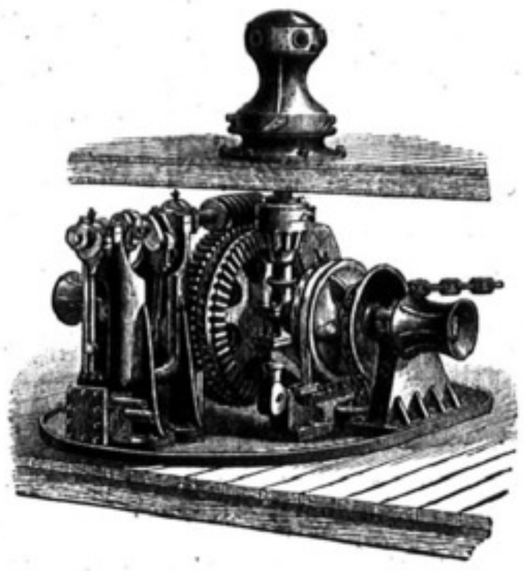
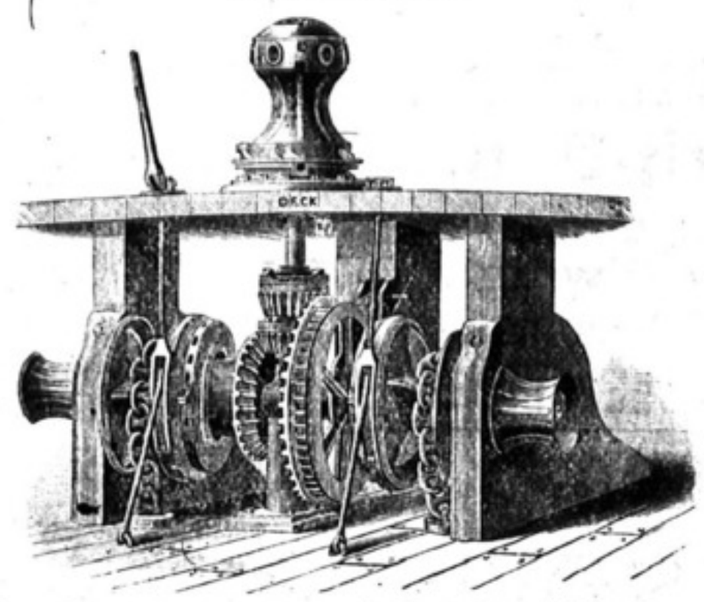


The Providence Patent Steam Capstan Windlass, New Style.



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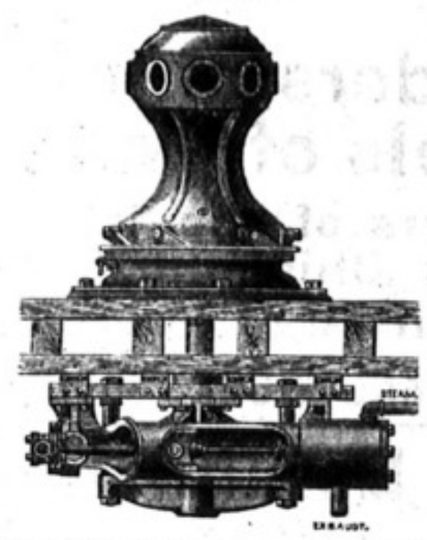
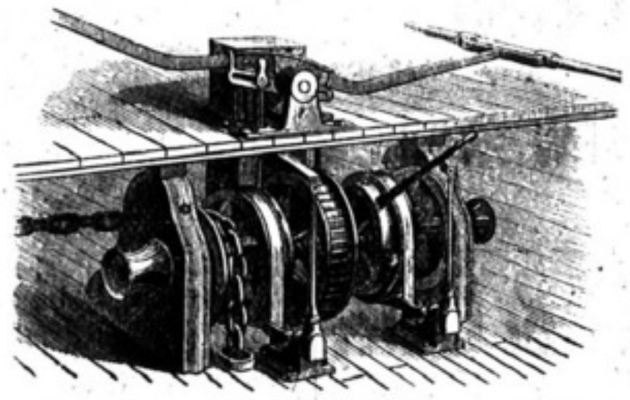


The Providence Patent Steam Capstan.

The Providence Patent Power Capstan.



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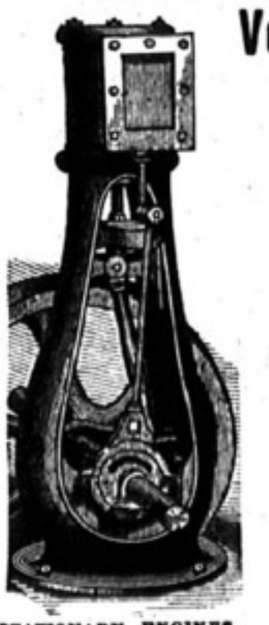

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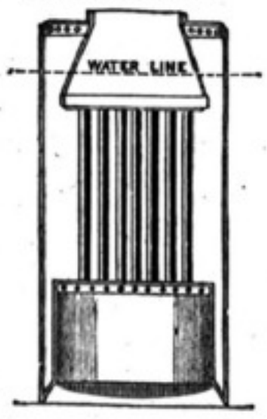

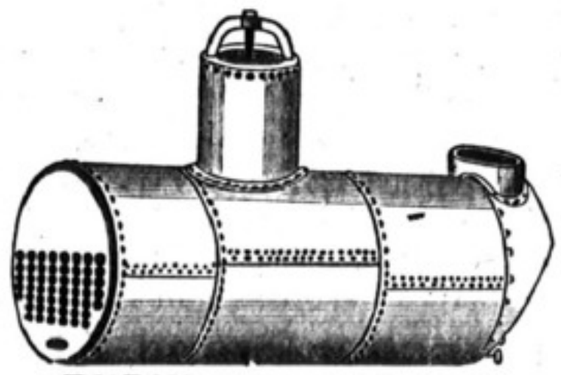

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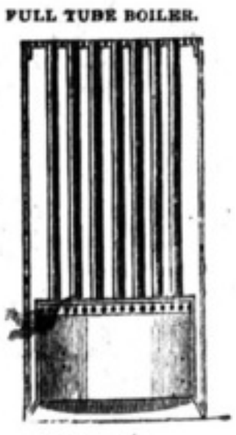

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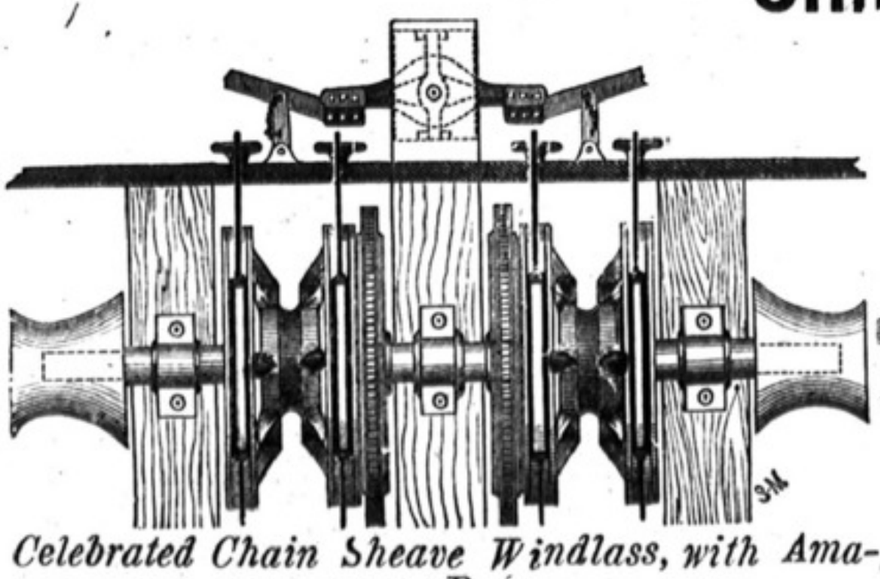
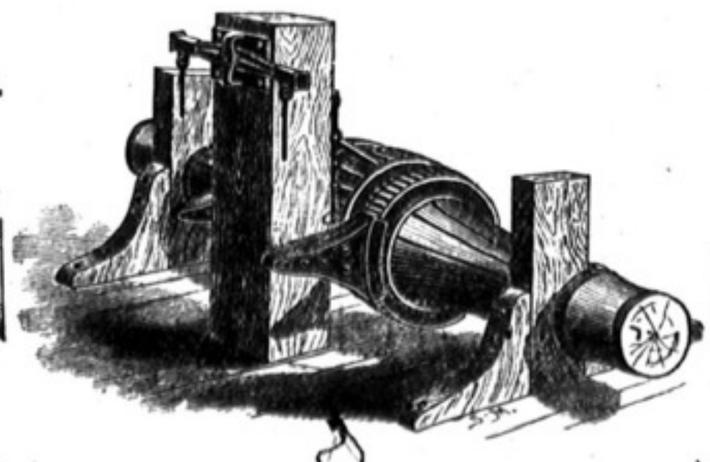
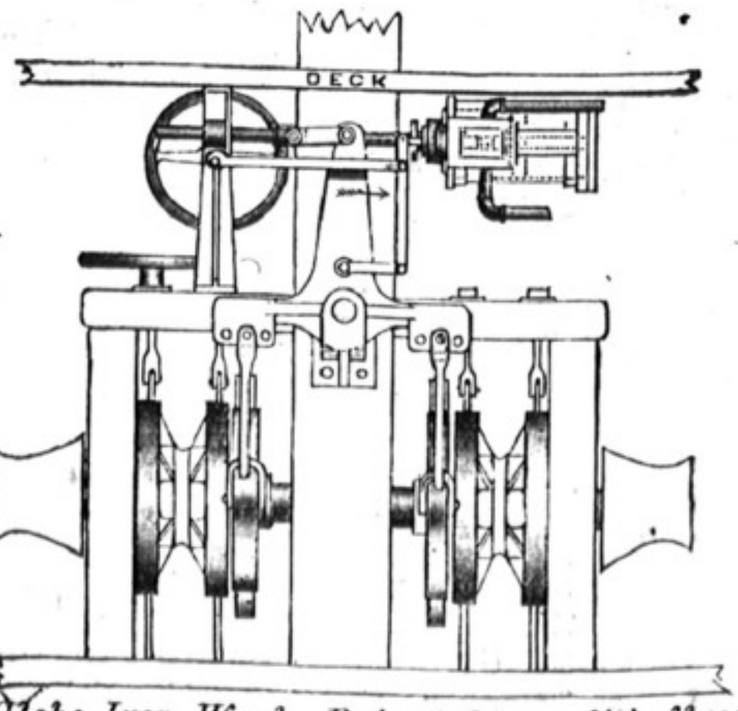


Celebrated Chain Sheave Windlass, with Amazeen Beam.



The Common Patent Windlass.



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